REMARKS

The present invention is a transmitting and receiving switching circuit of a wireless communication system including a mixer mixing a filtered signal output from a second filter portion with a local oscillator frequency from a local oscillator and an intermediate frequency filtering portion which filters an intermediate frequency output from the mixer and a transmitting and receiving switching method of a wireless communication system for judging whether the wireless communication system is in a transmission mode or in a receiving mode to determine a transmitting or a receiving frequency. In accordance with an embodiment of the invention, a transmitting and receiving switching circuit, as illustrated in Fig. 1, of a wireless communication system including a mixer 75 mixing a filtered output signal from a second filter portion 65 with a local oscillator frequency from a local oscillator 70 and an intermediate frequency filtering portion 77 which filters an intermediate frequency output from the mixer includes a controller 20, a selecting portion 10, connected to an input of the controller, which determines a transmitting and receiving frequency according to operation of the selecting portion and a band selecting portion 30, connected to an output of the controller which causes selection of an input signal of an upper band or a lower band of a received signal which passes through an antenna as illustrated in Fig. 1 and a duplexer 40 while generating a first control signal for determining a transmit frequency of the system; first and second switching portions 45 and 60 respectively connected at outputs thereof to a first filter portion 50 and the second filter portion 65 including upper and lower bands, which are switched in response to a second control signal output by the band selecting

portion which is applied at terminal c of the first switching portion 45 and the second switching portion 60 and which selects any one of upper and lower bands corresponding to the received signal which passes through the duplexer; the first filter portion being connected at an output thereof to an amplifying portion 55 which amplifies a filtered signal output from the first filter portion and outputs an amplified filtered signal to the second filter portion through the second switching portion; the second filter portion being connected between the amplifying portion and the mixer and which filters a received signal passing through the second filtered portion; and a transmit mode determining portion 90, coupled to the band selecting portion, which transmits a transmit signal with a transmit frequency determined by the first control signal output from the band selecting portion.

Claim 3 stands rejected under 35 U.S.C. §103 as being unpatentable over United States Patent 6,115,592 (Ueda et al) in view of United States Patent 6,366,788 (Fujioka et al). This ground of rejection is traversed with respect to newly submitted claim 5 which is based upon claim 3.

Claim 5 recites:

> A transmitting and receiving switching circuit of a wireless communication system including a mixer mixing a filtered signal output from a second filter portion with a local oscillator frequency from a local oscillator and an intermediate frequency filtering portion which filters an intermediate frequency output from the mixer comprising:
>
> a controller, a selecting portion, connected to an input of the controller, which determines a transmitting or receiving frequency according to operation of the selecting portion and a band selecting portion, connected to an output of the controller which causes selection of an input signal of an upper band or a lower band of a received signal which passes through an antenna and a duplexer while generating a first control signal for determining a transmit frequency of the system;
>
> first and second switching portions respectively connected at outputs thereof to a first filter portion and to the second filter portion including upper and lower bands, which are switched in response to a second control signal output by the band selecting portion and which

selects any one of the upper and lower bands corresponding to the received signal which passes through the antenna and the duplexer; and

a transmit mode determining portion, coupled to the band selecting portion, which transmits a transmit signal with a transmit frequency determined by the first control signal output from the band selection portion; and wherein

the first filter portion is connected at an output thereof to an amplifying portion which amplifies a filtered signal output from the first filter portion and outputs an amplified filtered signal to the second filter portion through the second switching portion, and the second filter portion is connected between the amplifying portion and the mixer and which filters a received signal passing through the second filter portion.

There is no counterpart in the proposed combination of Ueda et al and Fujioka et al of the claimed controller, selecting portion and band selecting portion and the first and second switching portions including the first and second control signals being output by the band selecting portion which respectively determine a transmit frequency of the system and selecting any one of upper and lower bands corresponding to the received signal which passes through the duplexer.

Ueda et al is fundamentally different than that of the present invention. Ueda et al disclose a system in which two filter elements are provided in a package. The numerous embodiments of Ueda et al describe parallel band pass filter elements operating at bandpass frequencies f1 and f2 which are manually selected in an embodiment to provide 800 MHz or 1500 MHz. band operation described in column 11, lines 60-67, through column 12, lines 1-50, and described elsewhere with respect to other embodiments in which the center frequencies of passbands f1 and f2 are also manually selected frequencies of operation. The overall objective of Ueda et al is to provide dual filter elements with separate passbands in a single package to minimize the size and weight of a radio system as described, for example, in column 8, lines 7-13.

What is notably absent from Ueda et al is anything pertaining to first and second switching portions connected at outputs respectively thereof to a first filter portion and to the second filter portion including upper and lower bands, which are switched in response to a second control signal output by the band selecting portion and which selects any one of upper and lower bands corresponding to the received signal which passes through the antenna and the duplexer. The operation of Ueda et al of selecting a filter band is not based upon any application of control signals. Filtering by Ueda et al is merely the result of the filter design being set up so that once the frequency band of operation, e.g. 800 and 1500 MHz. is manually chosen, the input of signals to the dual inputs of the filter package will be bandpass filtered by the particular filter element having the desired passband to output the desired frequency corresponding to the manually selected band. Since the filtering operation is not dependent upon any control signal, it is submitted that the Examiner has misinterpreted the teachings of Ueda et al as disclosing the claimed first and second switching portions which are controlled by the second control signal which was also recited in claim 3 as being switched in response to the control signal output by the band selecting portion.

The Examiner has cited Fujioka et al for teaching a controller, a selecting portion connected to an input of the controller, which determines a transmitting or receiving frequency according to operation of the selecting portion and a band selection portion, connected to an output of the controller which controls a control signal which selects an input signal of the upper band or the lower band of a received signal which passes through an antenna. It is submitted that Fujioka et al do not disclose this subject matter alone or when combined with the teachings of

Ueda et al as suggested by the Examiner. Fujioka et al discloses in Fig. 1, a dual band communication system which operates at 900 MHz. or 1800 MHz. However, Fujioka et al do not disclose to a band selecting portion producing the claimed first control signal for determining a transmit frequency of the system and the claimed second control signal which is applied to first and second switching portions as recited in claim 5. Claim 5 requires the first control signal of the band selecting portion to control the transmit frequency of the system and the second control signal to control selecting by the first and second switching portions of any one of upper and lower bands corresponding to the received signal which passes through the antenna and the duplexer.

Accordingly, while both Ueda and Fujioka et al describe dual band communications systems, if the proposed combination were made as suggested by the Examiner, the subject matter of claim 5 would not be achieved since the combination of a controller, a selecting portion, a band selecting portion, first and second switching portions and first and second control signals would not be achieved including the functions pertaining to the first and second control signals.

Accordingly, the subject matter of claim 5 is not obvious.

Claim 4 stands rejected under 35 U.S.C. §103 as being unpatentable over Ueda et al. This ground of rejection is traversed with respect to claim 6, which corresponds to claim 4, for the following reasons.

Claim 6 recites:

> A transmitting and receiving switching method of a wireless communication system for judging whether the wireless communication system is in a transmission mode or in a receiving mode to determine a transmitting or receiving frequency comprising the steps of:

first automatically switching a transmitting channel and a receiving
channel to place the transmitting channel on an upper band and the receiving channel on a lower band;
performing a transmitting or receiving operation in association with another communication system corresponding thereto after the first transmitting or receiving channel switching;
judging whether the transmitting or receiving operation is finished and when finished switching the transmitting or receiving mode into a waiting mode;
judging whether the wireless communication system is in another mode of the transmitting mode and receiving mode to determine another transmitting or receiving mode; and
second automatically switching the transmitting channel and the receiving channel to place the transmitting channel on the upper band and the receiving channel on the lower band.

As has been explained above, Ueda et al disclose a dual band communication system in which the selection of operating bands, such as 800 MHz and 1500 MHz, is based upon a switch connected to the baseband signal processor 71 as described in column 11, lines 55-67 through column 12, lines 1-51. This mode of operation does not describe "first automatically switching a transmitting channel and a receiving channel to place the transmitting channel on an upper band and the receiving channel on a lower band" as recited in claim 6. Moreover, the two judging steps, which first judge whether the transmitting or receiving operation is finished and when finished switching the transmitting or receiving mode into a waiting mode and which second judge whether the wireless communication system is in another mode of the transmitting mode and receiving mode to determine another transmitting or receiving mode, are not taught.

The Examiner suggest that all of this subject matter is obvious by merely stating, "[g]enerally speaking, one of ordinary skill in the art knows that time duration for transmitting or receiving information from a dual-band mode radiotelephone is predetermined...the radiotelehone knows when to turn up for transmitting and

receiving by adjusting the internal components such as filters and modulations...there is no predetermined time period for either active modes, the radiotelephone should be turn[ed] down or switch[ed] to idle or waiting mode...it would have been obvious to one of ordinary skill in the art at the time the invention was combined [the] aforementioned limitation[s] with Ueda's methods such that the radiotelephone would transmit or receive during certain predetermined duration time and switch to idle or waiting mode during non-transmitting or non-receiving automatically for the purpose of saving battery." This reasoning is based purely upon impermissible hindsight. Finally, there is no disclosure in Ueda et al of the claimed second automatically switching the transmitting and receiving channel to place the transmitting channel on the upper band and the receiving channel on the lower band.

In summary, claim 6 requires a combination of steps of first automatic switching, performing a transmitting or receiving operation, judging whether the transmitting or receiving operation is finished, judging whether the wireless communication is in another mode of the transmitting or receiving mode and finally, and second automatically switching the transmitting and receiving channel to place the transmitting channel on the upper band and the receiving channel in the lower band which has nothing to do with Ueda et al's disclosed dual band communication system which is operated manually by the user to select the operation band.

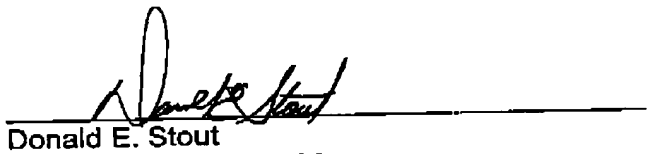
The specification has been amended to correct minor typographical errors.

In view of the foregoing amendments and remarks, it is submitted that each of the claims in the application is in condition for allowance. Accordingly, early allowance thereof is respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 C.F.R. §1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (1081.39543X00) and please credit any excess fees to such Deposit Account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP



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Attachments

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